

iii. If X and Y form two different compounds, one with 4 g of X and 8 g of Y, and another with 4 g of X and 16 g of Y, which law is illustrated here?

- (a) Law of Multiple Proportions. (b) Law of Conservation of Mass
(c) Law of Definite Proportions. (d) Law of Reciprocal Proportions

iv. What is the mass ratio of X and Y in the compound XY formed in the first experiment?

- (a) 1:2 (b) 2:1 (c) 1:1 (d) 3:2

29. Explain Dalton's atomic theory. Write any two limitations of the theory.

5

SECTION C – PHYSICS (25 Marks)

30. SI unit of acceleration is:

- (a) m/s (b) m/s² (c) km/h (d) N

1

31. The force that opposes motion between two surfaces in contact is:

- (a) Gravitational force. (b) Magnetic force
(c) Frictional force (d) Electrostatic force

1

32. Assertion (A): On a rainy day sound travels slower than on a dry day.

Reason (R): When moisture is absent in air the density of air decreases.

1

33. State four differences between speed and velocity.

2

34. State Newton's third law of motion with an example.

2

35. Verify- $s = ut + \frac{1}{2}at^2$.

3

36. State the universal law of gravitation. Prove it's formula also.

3

Or

State the three importance of the universal law of gravitation.

37. What is kinetic energy? Derive its formula.

3

38. Case Study.

4

your sentence:

A boy strikes a bell with a hammer, causing the bell to vibrate rapidly. As the bell vibrates, it disturbs the surrounding air particles, creating waves of compression and rarefaction that move outward in all directions. These waves, known as sound waves, carry the energy of the vibration through the air. When these waves reach our ears, they cause the eardrum to vibrate in a pattern that mirrors the original vibrations of the bell. The inner ear then converts these mechanical vibrations into electrical signals, which are sent to the brain and interpreted as the distinct ringing sound of the bell. This entire process demonstrates how a simple physical action—striking the bell—can produce a complex chain of events that allows us to perceive sound, illustrating the fascinating journey of vibrations from a solid object to our sensory experience.

i. Sound is produced due to:

- (a) Reflection (b) Refraction (c) Vibrations (d) Diffusion

ii. The medium required for sound propagation is:

- (a) Only air (b) Only solid (c) Any material medium (d) Vacuum

iii. The unit of frequency is:

- (a) m/s (b) Hertz (c) Joule (d) Newton

iii. Higher frequency sound has:

- (a) Lower pitch (b) Higher pitch (c) Lower loudness (d) No pitch

39. What do you mean by Law of inertia? Explain its types with proper example.

5

Or

A. A mass of 10 kg is at rest initially. A constant force acts on it for 2 s and the object attains a velocity of 20 m/s.

Calculate:- i. The force applied

ii. The work done by the force

B. A bullet of mass 10 g moving horizontally with a velocity of 150 m/s strikes a stationary wooden block and comes to rest after penetrating 0.5 m into it. Calculate the average force exerted by the block on the bullet.

- iii. Which nutrient is mainly supplied by fertilizers like urea?
 (a) Phosphorus (b) Potassium (c) Nitrogen (d) Calcium
- iv. Growing different crops alternately on the same land is called:
 (a) Mixed farming (b) Monocropping (c) Crop rotation (d) Irrigation
16. What do you mean by simple permanent tissue? State the features any two simple permanent tissue. 5

Or

Draw a diagram of any two Muscular tissue. Write two features of each.

SECTION B – CHEMISTRY (25 Marks)

17. Change of state from liquid to gas is called: 1
 (a) Freezing (b) Condensation (c) Vaporisation (d) Sublimation
18. A homogeneous mixture is called: 1
 (a) Colloid (b) Suspension (c) Solution (d) Compound
19. Law of conservation of mass was given by: 1
 (a) Dalton (b) Rutherford (c) Lavoisier (d) Bohr
20. Which one of the following sets of phenomenon would increase on raising the temperature? 1
 (a) Evaporation, diffusion, compression of gases
 (b) Evaporation, compression of gases, solubility
 (c) Evaporation, diffusion, expansion of gases
 (d) Evaporation, solubility, diffusion, compression of gases.
21. Which sub-atomic particle has no charge? 1
 (a) Proton (b) Electron (c) Neutron (d) Nucleus
22. Brass is an example of a 1
 (a) homogeneous compound (b) homogeneous mixture
 (c) heterogeneous mixture (d) heterogeneous compound
23. A colloidal solution shows: 1
 (a) Sedimentation (b) Tyndall effect (c) Precipitation (d) Diffusion only
24. Assertion (A): Molecular weight of oxygen is 16. 1
 Reason (R): Atomic weight of oxygen is 16.
25. How do you know that nucleus is very small as compared to the size of atom? 2
26. State the law of conservation of mass with proper example. 3
27. Write three differences between mixture and compound. 3
28. Case Study. 4

A chemistry teacher conducted an experiment in the lab to demonstrate the law of conservation of mass and the combination of elements to form compounds. She took two elements, X and Y, which reacted together to form a compound XY.

She carefully weighed 4 g of element X and 8 g of element Y. After the reaction, she found that 12 g of the compound XY was formed. She then repeated the experiment with a different ratio of elements: 4 g of X and 16 g of Y. This time, only 12 g of the compound was formed, and 4 g of Y remained unreacted.

From these observations, the teacher explained the following points to the students:

Atoms of different elements combine in fixed ratios by mass to form a compound.

The total mass of the reactants equals the mass of the products (law of conservation of mass).

Some elements may react in multiple proportions to form different compounds.

- i. What is the mass of element Y that actually combined with 4 g of X in the second experiment?
 (a) 4 g (b) 8 g (c) 12 g (d) 16 g
- ii. Which law is demonstrated by the fact that 12 g of compound was formed from 4 g of X and 8 g of Y?
 (a) Law of Multiple Proportions (b) Law of Conservation of Mass
 (c) Law of Definite Proportions (d) None of the above



SHANTI MISSION ACADEMY

AFFILIATED TO CBSE DELHI, UPTO + 2 LEVEL

BARIAHI BAZAR, SAHARSA- 852212 (BIHAR)

Term-II Examination (2025-26)

Sub: - Science

Class: IX

F M - 80

Time: -3 hrs.

General Instructions:-

- ❖ All questions are compulsory.
- ❖ The question paper consists of Section A (Biology), Section B (Chemistry) and Section C (Physics).
- ❖ Use neat and labelled diagrams wherever required.
- ❖ Internal choices are provided.
- ❖ Read the question paper carefully and give the answers in your own words.

SECTION A – BIOLOGY (30 Marks)

1. The cell organelle responsible for protein synthesis is: 1
(a) Mitochondria (b) Ribosome (c) Golgi apparatus (d) Lysosome
2. Which tissue helps in movement of body parts? 1
(a) Nervous tissue (b) Connective tissue (c) Muscular tissue (d) Epithelial tissue
3. The plasma membrane is: 1
(a) Freely permeable (b) Impermeable (c) Semi-permeable (d) Selectively permeable
4. Which of the following is a dead tissue? 1
(a) Xylem (b) Phloem (c) Parenchyma (d) Collenchyma
5. The nucleus of a cell controls: 1
(a) Respiration (b) Digestion (c) All cell activities (d) Storage
6. Rearing of honey bees on a large scale is called: 1
(a) Pisciculture (b) Apiculture (c) Poultry farming (d) Horticulture
7. Which nutrient is mainly required for body growth and repair? 1
(a) Carbohydrates (b) Fats (c) Proteins (d) Vitamins
8. Assertion (A): The use of improved seeds increases crop production. 1
Reason (R): Improved seeds are more susceptible to diseases.
9. Assertion (A): Crop rotation helps in maintaining soil fertility. 1
Reason (R): Different crops use different nutrients from the soil.
10. A. Define cell B. Define tissue 2
11. How does meristematic tissue differ from permanent tissue? 2
12. What is weed? Name two methods to remove it. 2
13. Write three differences between plant cell and animal cell. 3
14. Explain mixed cropping with one advantage. 3
Or
Explain crop rotation with one advantage.
15. Case Study. 4

Farmers often face low crop productivity due to poor soil fertility, pests and lack of nutrients. To improve yield, modern agricultural practices such as use of manures, fertilizers, crop rotation and pest control are adopted. These methods help in maintaining soil health and increasing food production to meet the needs of a growing population.

i. Which of the following improves soil structure naturally?

- (a) Fertilizers (b) Pesticides (c) Manure (d) Weedicides

ii. Crop rotation helps in:

- (a) Soil erosion (b) Loss of nutrients (c) Maintaining soil fertility (d) Water pollution